

TREATMENT OF SONGOLD PLUMS WITH SmartFreshSM (2011 SEASON)

INSTRUCTION

The following procedures compiled by Agrofresh Inc. and ExperiCo (Fruit Technology Solutions) are for SmartFreshSM applications on Songold plums during the 2011 season.

1. Fruit maturity and packaging

- The flesh firmness must be between 7.0 and 5.0 kg with the optimum 6.5 kg, as measured with a penetrometer fitted with a 11 mm plunger.
- The maturity of the fruit must be uniform.
- No plums below a minimum flesh firmness of 5.0 kg are permissible in the consignment.
- Skin colour must not exceed plate 6 on colour chart PL19 for Songold plums.
- The minimum average TSS is 12.5%
- The plums can be packed in standard cartons, punnets or thrift bags prior to or after SmartFreshSM application.
- In standard cartons perforated grape bags (54 x 2 mm perforations) or perforated plum wrappers can be used. Perforated grape bags must only be used on SmartFreshSM treated Songold plums.
- Plum wrappers rather than bags are preferred for use on fruit with a high decay potential.

2. Re-inspection

According to the AGRICULTURAL PRODUCT STANDARDS ACT, 1990 (ACT No 119 OF 1990) the re-inspection period of Songold plums treated with SmartFreshSM shall be after 35 days.

3. SmartFreshSM application procedure and handling

3.1 Shipping container or room application of SmartFreshSM on packed and palletized plums intended for shipping after the warming period at 7.5°C

- The plums must be packed and placed under cooling at -0.5°C within 24 hours after harvest. The standard norms for the cooling of Songold plums must be followed.
- The SmartFreshSM application must be conducted after the plums have been cooled to -0.5°C , but within a maximum of 7 days after harvest.
- The temperature set point in the cold room and shipping container must be -0.5°C and the in the case of the latter, the container must be available for 24 hours to facilitate the SmartFreshSM application.
- SmartFreshSM application duration is 16 – 24 hours.

- After the SmartFreshSM application the temperature must be raised to 7.5°C for 14 to 18 days (room or container). Flesh firmness must be monitored during the period at 7.5°C and the fruit must be re-cooled to –0.5°C if the flesh firmness drops below 4.5 kg.
- After the period at 7.5°C the plums must be re-cooled to –0.5°C using forced-air cooling and stored and shipped at –0.5°C (PD1). The maximum storage period from harvest is 56 days excluding shelf life.
- Since SmartFreshSM treated plums may be stored for extended durations, pre- and post-harvest decay prevention strategies should be stringently followed.
- The plums can be ripened at 18°C prior to marketing if required.

3.2 [Shipping container application of SmartFreshSM on packed and palletized plums with warming cycle conducted in container during shipping](#)

- The plums must be packed and placed under cooling at –0.5°C within 24 hours after harvest. The standard norms for the cooling of Songold plums must be followed.
- The SmartFreshSM application must be conducted after the plums have been cooled to –0.5°C, but within a maximum of 7 days after harvest.
- The temperature set point of the shipping container must be –0.5°C and the container must be available for 24 hours to facilitate the SmartFreshSM application.
- SmartFreshSM application duration is 16 – 24 hours.
- After the SmartFreshSM application the temperature in the container must be raised to 7.5°C for 14 days. After 14 days the container temperature must again be lowered to –0.5°C.
- The fruit must be stored at –0.5°C for the remainder of the cold storage period.

3.3 [Bin application of SmartFreshSM in CA rooms for plums held in South Africa for up to 3 weeks prior to packing and shipping](#)

- Ensure that SmartFreshSM application room is air-tight.
- No bins with overripe or insect damaged fruit should be in the treatment room (damaged or overripe fruit will produce ethylene and compromise the SmartFreshSM treatment).
- The room must be cleaned and sanitised before use.
- The plums must be placed under cooling at –0.5°C immediately after harvest. Ensure that the fruit in the centre of the bins is also effectively cooled.
- The SmartFreshSM application must be conducted after the plums have been cooled to –0.5°C, but within a maximum of 5 days after harvest.
- SmartFreshSM application duration is 16 – 24 hours.
- Make sure that the room is well vented after SmartFreshSM application to prevent a build-up of CO₂.
- After treatment the temperature must be raised to 7.5°C for 14 to 18 days depending on the maturity.
- Check the maturity and general quality of the plums regularly prior to packing.
- Pack the fruit immediately if the flesh firmness declines to 5.0 kg or below.

- Pack the fruit immediately after the period at 7.5°C. Bins that cannot be packed immediately must be placed at -0.5°C.
- After packing the plums must be force-air cooled to -0.5°C and stored and shipped at -0.5°C.
- The maximum storage period from harvest is 56 days excluding shelf life.
- Since SmartFreshSM treated plums may be stored for extended durations, decay prevention strategies should be stringently followed.
- The plums can be ripened at 18°C prior to marketing if required.

4. SmartFreshSM efficacy samples

- Two extra representative cartons of plums must be made available to ExperiCo prior to SmartFreshSM application.
- One carton will be treated with SmartFreshSM in the commercial application and the other will be used as a untreated control.
- The extra cartons will be used to determine the efficacy of the SmartFreshSM treatment.
- While every effort will be made to inform packhouses/exporters of abnormal ripening if it occurs, it remains the responsibility of the packhouse/exporter to monitor fruit ripening progression in the supply chain and to make decisions required to achieve optimal quality. This applies particularly for monitoring of maturity of plums in cases where the warming cycle is conducted locally.